REMARKS/ARGUMENTS

Brief Summary of Status

Claims 1-30 are pending in the application.

Claims 1-30 are rejected.

The Applicant has amended certain of the claims.

The Applicant has canceled certain of the claims.

The Applicant has added certain new claims.

The Applicant respectfully believes that no excess claim fees are due.

35 U.S.C. § 103

In the above-referenced office action, the Examiner asserts the following:

"2.   Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ertel et al (US 7,031,290 B2) in view of Ariyoshi et al (US Patent 5,930, 244) in view of Horne (US Patent 7,012,884 B2). Hereinafter referred as Ertel, Ariyoshi and Horne." (office action, Part of Paper No./Mail Date 20080820, p. 2)

The Applicant respectfully traverses.

The Applicant has amended certain of the claims.

The Applicant has canceled certain of the claims.

The Applicant has added certain new claims.

The Applicant respectfully believes that no excess claim fees are due.

The Applicant respectfully points out that in the Examiner-cited portion of Ertel in which the Examiner refers to "orthogonal codes" seemingly disclosed therein (i.e., Ertel's col. 1, lines 51-54), Ertel particularly teaches and discloses that multiple users share and use "an identical spreading code".

For example, with respect to the Examiner-identified orthogonal codes in Ertel, Ertel teaches and discloses:

"The ability of the SDMA system to provide orthogonal code channels to each user is a function of the spatial properties of the <u>users that are assigned an identical spreading code</u>. Therefore, when assigning codes to new users, care is taken to insure that the set of users that are <u>assigned an identical code</u> are spatially compatible. A good code

assignment scheme in accordance with these teachings <u>assigns identical codes to users having most dissimilar spatial properties</u>." (Ertel, col. 1, lines 51-59, <u>emphasis added</u>)

In contradistinction, as an example with respect to independent claim 1, the Applicant claims subject matter subject matter in which each orthogonal code of the plurality of orthogonal codes corresponds to one respective cable modem of the plurality of cable modems. In other words, no two cable modems of the plurality of cable modems use the same orthogonal code. This is not assigning of any "<u>identical spreading code</u>" across users.

The teaching and disclosure of Ertel, in which multiple user are assigned "<u>an identical spreading code</u>" (which is Examiner equivalences with Applicant's claimed "orthogonal codes"), teaches away from the subject matter as claimed by the Applicant.

Moreover, the context in which Ertel operates is with respect to "wireless communication systems and methods" (see Ertel's col. 1, lines 15-16), and as such, the "<u>dissimilar spatial properties</u>" of various users, such as in context of beamforming, etc., in the wireless context may be employed to differentiate and keep separate the signals employed by different devices that use "<u>an identical spreading code</u>" therein. However, such application of "<u>an identical spreading code</u>" would be inappropriate within a wired communication system in which there are not "<u>dissimilar spatial properties</u>".

As such, it is with good reason that "Ertel fails to teach disclose the use of a plurality of cable modems" (as Examiner acknowledges on page 3 of the office action), because without the "<u>dissimilar spatial properties</u>" provided in a wireless system, the use of "<u>an identical spreading code</u>" across various devices would be inappropriate. Ertel particularly needs these "<u>dissimilar spatial properties</u>" in order to be able to assign "<u>an identical spreading code</u>" across various devices.

Moreover, the Applicant respectfully asserts that it is improper to combine the teaching and disclosure of Ertel with wired devices that do not have such "<u>dissimilar spatial properties</u>", perform beamforming, etc.

As such, the teaching and disclosure of Ertel, in which it is assumed and in fact necessary that various devices therein have "<u>dissimilar spatial properties</u>" (i.e., wireless in nature and "attempts to minimize the similarity of the SSV (spatial signature vector) of the users that share any given code" (see Ertel's col. 13, lines 43-44)) and as such can

employ "an identical spreading code", does not translate to a wired communication system such as a cable modem system. The very operation of Ertel is in accordance with a wireless system (e.g., using antenna elements, beamforming, etc.).

On page 3 within the office action, the Examiner asserts that Ertel teaches and discloses "using a pseudo-noise code to generate a pseudo-noise code signal (column 1, lines 15-19". In that Examiner-cited section, Ertel teaches and discloses "assigning pseudo-noise (PN) spreading codes to users".

With respect to the use of pseudo-noise code disclosed in Ertel, it is clear that some devices (i.e., SS 10s) use a shared pseudo-noise code and other devices (i.e., other SS 10s) use a non-shared pseudo-noise code in accordance with Ertel. However, for those devices (i.e., SS 10s) use a shared pseudo-noise code, there necessarily needs to be some additional means by which the devices may be orthogonal (separable) in Ertel, and this is achieved by the wireless context therein that provides "dissimilar spatial properties" across devices and using appropriately designed "unique training data".

The Applicant respectfully asserts that certain of the devices in Ertel use "an identical spreading code" therein.

In contradistinction, the Applicant claim subject matter in which each of the cable modems use a same pseudo-noise code, but each of the cable modems also employs a respective orthogonal code. There are two separate types of codes employed in the Applicant's claimed subject matter: a singular, pseudo-noise code employed by each cable modem, and a plurality of orthogonal codes such that each orthogonal code of the plurality of orthogonal codes corresponds to one respective cable modem of the plurality of cable modems.

Ertel fails to teach and disclose such limitations.

With respect to Ariyoshi, Ariyoshi explicitly teaches and discloses that each forward link uses a pseudo noise specific to that link, and each reverse link likewise uses a pseudo noise specific to that link. In other words, different links do not employ a same pseudo-noise code to perform spreading/de-spreading in accordance with Ariyoshi.

Ariyoshi teaches and discloses:

"At each modem 106-i, the input signal Rx is demodulated through de-spreading and decoded to derive a transmitted signal (received data) of each terminal station. As

will be later detailed with reference to FIG. 2, each modem 106-i performs two steps of de-spreading by using pseudo noises PNr specific to each reverse link generated from a reception pseudo noise (PN) generator 211 and by using an orthogonal code Wi assigned to each terminal station and generated from an orthogonal code generator 212." (Ariyoshi, col. 4, lines 11-18, emphasis added)

Ariyoshi also teaches and discloses:

"This spectrum spreading is performed in two steps by using pseudo noises PNf specific to each forward link generated by a pseudo noise (Tx-PN) generator 104 and by using an orthogonal code Wi specific to each terminal station generated by an orthogonal code generator 105. The signal modulated through spectrum spreading is output as a transmitting signal Tx-i (i=1 to n)." (Ariyoshi, col. 4, lines 50-57, emphasis added)

As can be seen in accordance with the teaching and disclosure of Ariyoshi, there is no singular, pseudo-noise code employed by each of a number of devices. Rather, "pseudo noises PNr specific to each reverse link" and "pseudo noises PNf specific to each forward link" are employed. In other words, two different links (and consequently two different devices on each of the two different links) would employ different "pseudo noises" specific to each respective link in accordance with Ariyoshi.

This teaching and disclosure of Ariyoshi teaches away from the subject matter as claimed by the Applicant in which a singular, pseudo-noise code is employed by each cable modem.

The Applicant respectfully asserts that the inclusion of Horne fails to overcome the deficiencies of Ertel and Ariyoshi.

The Applicant respectfully asserts that Ertel, Ariyoshi, and Horne, when considered individually or together, fails to teach and disclose the subject matter as claimed by the Applicant in these claims.

In view of at least these comments made above, the Applicant respectfully believes that these independent claims rejected above are patentable over these cited references.

The Applicant respectfully believes that these dependent claims rejected above, being further limitations of the subject matter as claimed in allowable independent claims, respectively, are also allowable.

As such, the Applicant respectfully requests that the Examiner withdraw the rejections of these claims.

The Applicant respectfully believes that the pending claims are in condition for allowance and respectfully requests that they be passed to allowance.

The Examiner is invited to contact the undersigned by telephone or facsimile if the Examiner believes that such a communication would advance the prosecution of the present U.S. utility patent application.

RESPECTFULLY SUBMITTED,

By: _____/SXShort/ Reg. No. 45,105_____

Shayne X. Short, Ph.D., Reg. No. 45,105
Direct Phone: (512) 825-1145
Direct Fax No. (888) 456-7824

GARLICK HARRISON & MARKISON
ATTORNEYS AT LAW
P.O. BOX 160727
AUSTIN, TEXAS 78716-0727
TELEPHONE (512) 825-1145 / FACSIMILE (888) 456-7824 or (888) 711-8305